PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 28 APR 2006
WIPO PCT

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
36452pc01		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/DK2004/000753	29.10.2004	30.10.2003
International Patent Classification (IPC) or both national classification and IPC		
INV. G06F1/26		
Applicant		
INTERNATIONAL POWER SWITCH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 12 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☒ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
13.01.2006	28.04.2006
Name and mailing address of the international preliminary examining authority:	Authorized Officer
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/DK2004/000753

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-53 as originally filed

Claims, Numbers

1-33 received on 13.01.2006 with letter of 13.01.2006

Drawings, Sheets

1-24 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

   ☐ the entire international application,

   ☒ claims Nos. 4

   because:

   ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

   ☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. are so unclear that no meaningful opinion could be formed *(specify)*:

   ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

   ☒ no international search report has been established for the said claims Nos. 4

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/ or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

   ☐ the written form has not been furnished or does not comply with the Standard.

   ☐ the computer readable form has not been furnished or does not comply with the Standard.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees, the applicant has:

   ☐ restricted the claims.

   ☒ paid additional fees.

   ☐ paid additional fees under protest.

   ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

   ☐ complied with.

☒ not complied with for the following reasons:

see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

☒ all parts.

☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-33
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-33
Industrial applicability (IA)	Yes:	Claims	1-33
	No:	Claims	

2. Citations and explanations

see separate sheet

Re. I tem III

1. No examination of claim 4 is being done, as no claim 4 could be found in the set of claims of the present application, contrary to the requirements of Rule 6.1(b) PCT that claims shall be numbered consecutively.

Re. Item IV

1. Reference is made to the following document:

   D1 : US 2003/126253 A1 (EWING CARREL W ET AL) 3 July 2003 (2003-07-03)

2. The International Preliminary Examination Authority considers that the present application contains 2 inventions, not linked by a single general inventive concept (Rule 13.1 PCT).

   The separate inventions/groups of inventions are:

   I. claims 1 to 3, 5 to 14, and 24 to 33 : a power distribution device, comprising outlets, sensors, sensor ports for receiving a sensor signal and a network connection, capable of operating the outlets in response to information from sensors and/or sensor ports and/or network.

   II. claims 15-23 :
   - a method for finding unknown devices on a network and storing data relating to these devices in a database.

   - a method for scanning a network for new power distribution devices, assigning a belonging to each device and storing a record relating to each of these devices in a database. The network comprises at least one user terminal, network devices and at least one power distribution device.

3 The closest prior-art has been defined as D1 (the references in parentheses applying to this document), which discloses a power distribution device (see §[0096] and

associated fig. 7, device composed of elements 702 and 708) for controlling and monitoring states in and around a computer network (see §[0097]- §[0099]), the device comprising :

- a processor and a memory (the host 702 being a computer platform (see §[0101], it must contain a processor and a memory),
- sensors (see §[0099]),
- power outlets (see §[0010]),
- a connection to a communication network (see §[0096] and associated fig. 7, element 704),

Since sensors are provided in the apparatus of D1 (see §[0099], element 710), and the readings are sent to the processor (see §[0097], last sentence), the sensors must be connected to the device 708 by means of sensor ports.

Control of the power outlets is then done by a user connected to the host 702, this host receiving all readings and information from the sensors and/or sensor ports and/or communication network (see §[0097]).

4. Consequently, the Special Technical Features as defined in Rule 13.2 PCT are the following :

4.1 For invention 1 (see claim 1):

the processor is operable to control said at least one outlet **in response to** information provided from the at least one sensor port and/or the at least one sensor and/or information provided from said communication network.

From these Special Technical Features, the objective problem to be solved by the first invention (objective problem 1) can be seen as:

how to improve the reaction time of the system.

4.2 For invention 2 (see claim 15):

A method for collecting and storing data from unknown devices in a network environment (this latter further comprising a home database, unknown network devices, and a first database comprising usage information about the unknown devices), the method comprising the steps of :

- from a user terminal sending a request to a proxy/transparent layer for finding network devices,
- the proxy/transparent layer finds and connects to unknown network devices,
- when an unknown device is found, collecting and storing data relating to the unknown devices in the home database.

From these Special Technical Features, the objective problem to be solved by the second invention (objective problem 2) can be seen as

how to provide an easy way of expanding a network.

5. The above analysis shows that each of the Special Technical Features of one invention is neither the same nor corresponding to the other Special Technical Features characterizing the other invention.

Therefore the technical relationship among the two inventions involving one or more of the same or corresponding Special Technical Features required by Rule 13.2 PCT is missing.

6. Thus this application does not comply with the requirements of Unity of Invention, Rule 13.1 PCT.

Re Item V.

1 Reference is made to the following documents:

D1: US 2003/126253 A1 (EWING CARREL W ET AL) 3 July 2003 (2003-07-03)

D2: US-A-5 534 734 (PUGH ET AL) 9 July 1996 (1996-07-09)

D3: SPECTRUM CONTROL INC.: "AC POWER DISTRIBUTION UNIT"[Online] 2002, XP002324699 Retrieved from the Internet: URL:http://web.archive.org/web/20030326083

254/http://www.specpower.com/pdfs/acsmart. pdf> [retrieved on 2005-04-14]

D4: "Ping" INTERNET DOCUMENT, [Online] 27 September 2002 (2002-09-27), XP002343583 Retrieved from the Internet: URL:http://www.linuxmanpages.com/man8/ping .8.php> [retrieved on 2005-09-06]

D5: WO 03/071742 A (CANON KABUSHIKI KAISHA; NAKAZAWA, TOSHIYUKI) 28 August 2003 (2003-08-28)

D6: EP-A-0 809 383 (SUN MICROSYSTEMS, INC) 26 November 1997 (1997-11-26)

D7: EP-A-1 322 069 (ALCATEL CANADA INC) 25 June 2003 (2003-06-25)

D8: US 2002/188759 A1 (ROY JOYDEEP ET AL) 12 December 2002 (2002-12-12)

D9: EP-A-0 996 253 (CANON KABUSHIKI KAISHA) 26 April 2000 (2000-04-26)

2. INDEPENDENT CLAIM 1

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claim 1 does not involve an inventive step in the sense of Article 33(3)PCT.

2.1.1 The features of independent claim 1 disclosed by document D1, which is considered to represent the most relevant state of the art to the subject matter of claim 1, are presented in paragraph 3.1 of Item IV.

2.1.2 The subject-matter of independent claim 1 differs from the disclosure of D1 only in that :

According to claim 1, the processor is operable to control said at least one outlet **in response to** information provided from the at least one sensor port and/or the at least one sensor and/or information provided from said communication network,

whereas in document D1, control of the power outlets is done by a user connected to the host 702, this host receiving all readings and information from the sensors and/or sensor ports and/or communication network (see §[0097]).

2.1.3 The problem to be solved by the present invention may therefore be regarded as:

how to improve the reaction time of the system.

2.1.4 The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons :

A skilled person, wanting to solve the above problem, would recognize that the delay is introduced by the user, who needs to analyse the information he receives and eventually decides how to react. A skilled person would know that in most of the cases, the type of reaction is standard and could therefore be automated. Thus the skilled person would modify the device of D1 in order to have the processor control the outlets in response to information provided by the sensors and/or sensor ports and/or communication network. This solves the above stated problem.

2.1.5 The proposed solution in independent claim 1 thus cannot be considered inventive (Article 33(3) PCT).

3 DEPENDENT CLAIMS 2, 3, 5 TO 14 AND 24 TO 33

Dependent claims 2, 3, 5 to 14, and 24 to 33, do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with regard to inventive step (Article 33(3) PCT). See also documents D2 and D3, and passages cited in the search report.

It is to be noted that no dependent claim 4 could be found in the set of claims of the present application.

4 INDEPENDENT CLAIM 15

4.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claim 15 does not involve an inventive step in the sense of Article

33(3)PCT.

4.1.1 The prior art has been defined as D4 which discloses the "PING" command. From a host on a network, when a "ping -b <broadcast address>" is issued, all network devices on this network will reply by sending their IP- and MAC-address, which will be used to update the ARP table.

Therefore D4 discloses *a method for collecting data and storing data from unknown devices in a network environment, the network environment comprising a network, a user terminal* (the host from which the command is issued), *a home database* (the ARP table), *unknown network devices* (the devices connected on the network), *the method comprising the steps of :*

- *from the user terminal* (the host) *sending a request to a proxy/transparent layer for finding network devices* (the "ping -b <broadcast address>" command),
- *the proxy/transparent layer finds and connects to unknown network devices* (the reply from the devices), *and*
- *when an unknown network device is found, collecting and storing data relating to the unknown device in the home database* (storing/updating the ARP table)

4.1.2 The subject-matter of independent claim 15 differs from the disclosure of D4 only in that :

According to claim 15, the network environment comprises a first database comprising usage information about the unknown network devices,

whereas D4 is silent with regard to this feature.

4.1.3 The problem to be solved by the present invention may therefore be regarded as:

how to improve management of network devices

4.1.4 The solution proposed in claim 15 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons :

Having a first database comprising usage information about the unknown devices in a network environment, e.g. a log file, is well known in the field of networks and is a mere design choice by the skilled person, without the exercise of inventive skill, in order to solve the problem posed.

5 INDEPENDENT CLAIM 17

5.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 17 does not involve an inventive step in the sense of Article 33(3) PCT, for the following reasons :

Document D5 discloses :

A method for creating a database comprising devices in a network, the network comprising :

- at least one user terminal (Host 106, see p. 25, l 9-12)

- a multiple of network devices (see p. 25, l. 12-16),

the method comprising the steps of :

-scanning the network for new network devices (see p. 27, l. 18-24, and step 1101)

- upon a request from the user terminal receiving at least one message from each new network device (see p. 27, l. 18-24"unset devices"), *the message containing among other data the unique identifier of the sensors connected to the new network device* (the unique identifier being the MAC-Address of the network device, the "sensor" being considered as the network interface of this network device),

- assigning a belonging to the new network device and creating a record relating to each new device (see p. 28, l. 9-14, address assignment),

- storing the record in a database (assignment list of module 1008, p. 226, l. 18-20, and p. 28, l. 15-18).

A skilled person would recognize that the method of D5 is applicable to any type of network device. Since a power distribution device is a known network device (see D1), a skilled person wanting to discover the new power distribution devices in a network would apply the method disclosed by D5.

The proposed solution in independent claim 17 thus cannot be considered inventive (Article 33(3) PCT).

7 DEPENDENT CLAIMS 16, 18 TO 23

Dependent claims 16, 18 to 23, do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with regard to inventive step (Article 33(3) PCT). See also documents D6, D7, D8 and D9, and passages cited in the search report.

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CLAIMS

1. A power distribution device for controlling and monitoring states in and around a computer network, the device comprises:
- at least one processor,
- at least one memory,
- at least one sensor port for receiving a sensor signal,
- at least one sensor, for example at least one watt meter,
- at least one power outlet, and
- a connection to a communication network,

wherein the processor is operable to control said at least one outlet in response to information provided from the at least one sensor port and/or the at least one sensor and/or information provided from said communication network.

2. A power distribution device according to claim 1 wherein the memory comprises a unique ID.

3. A power distribution device according to claim 1 further comprising a connection to another power distribution device.

5. A power distribution device according to claim 1, wherein sensors are connected to the sensor port.

6. A power distribution device according to claim 5 wherein the processor is programmed to act according to predefined rules.

7. A power distribution device according to claim 6 wherein the predefined rules are threshold values.

8. A power distribution device according to claim 1 wherein the processor is programmed to communicate with a data structure comprising:
- at least one outlet block comprising data relating to an outlet,
- at least one sensor block comprising data relating to a sensor.

9. A user interface for a user terminal connected to a computer network comprising one or more power distribution devices according to claim 1, the user interface comprises a display and at least one panel/window, wherein the at least one panel comprises one or more elements.

10. A user interface according to claim 9 wherein the user interface comprises a grouping functionality for the network devices, in order to be able to assign a network device to at least one specific group.

11. A user interface according to claim 10 wherein the user interface comprises a display function which displays the network devices according to a chosen group.

12. A user interface according to claim 11 wherein the user interface comprises a display function which displays the network devices according to chosen groups.

13. A user interface according to claim 11 wherein the display function is performed by a drag and drop action.

14 A user interface according to claim 9 wherein the panels/windows relates to at least one of the following type of panels/windows:

- icon list/view,
- Outlet list/view,
- Sensor list/view,
- warning list/view,
- action list/view,
- Rescan list/view,
- Power distribution unit list/view.

15. A method for collecting and storing data from unknown devices in a network environment, the network environment comprises a network, a user terminal, a home database, unknown network devices and a first database comprising usage information about the unknown network devices, the method comprising the steps of:

- from the user terminal sending a request to a proxy/transparent layer for finding network devices,
- the proxy/transparent layer find and connect to unknown network devices, and
- when a unknown network device is found, collecting and storing data relating to the unknown devices in the home database.

16. A method according to claim 15 wherein the step of connecting to an unknown network device further comprises the steps of:

- using the usage information stored in the first database for communicating with an unknown device.

17. A method for creating a database comprising devices in a network, the network comprising:

- at least one user terminal,
- a multiple of network devices and
- at least one power distribution device comprising sensors and outlets for controlling the power to the network devices,

the method comprises the steps of:

- scanning the network for new power distribution devices,
- upon a request sent from the user terminal receiving at least one message from each new power distribution device, the message containing among other data the unique identifier of the sensors connected to the new power distribution device
- assigning a belonging to the new power distribution device,

- creating a record relating to each new device, and
- storing the record in a database.

18. A method according to claim 17 further comprising a step of creating an encrypted wallet file, the wallet file comprises logins and/or passwords to the devices connected to the network.

19. A method according to claim 17 wherein the message comprises an XML file.

20. A method according to claim 17 wherein the scanning is executed either manually or automatically at start.

21. A method according to claim 17 further wherein the belonging relates to at least one of the following:
- type of device,
- location of the device,
- functionality of the device,
- user defined belonging.

22. A method according to claim 17 further comprising the step of contacting devices on external networks by using the IP address or domain name of the device.

23. A method according to claim 17 wherein the record comprises at least one of the following:
- ip address of the device,
- name of the device,
- function of the device,
- group belonging,
- location of the device,
- outlet(s),
- loads on outlets,
- description of the device,
- sensors.

24. A method for controlling power distribution devices in a network, the network comprising:
- at least one user terminal comprising a display,
- a multiple of network devices,
- one or more power distribution devices according to claim 1 comprising sensors and multiple outlets supplying power to the network devices,
- one or more power distribution devices comprising sensors and multiple outlets supplying power to the network devices,

the method comprises the steps of:
- displaying the power distribution devices and/or outlets according to a belonging of the distribution devices and/or outlets,

- controlling the power distribution devices and/or outlets according to an action triggered by an input.

25. A method according to claim 24 wherein the belonging relates to at least one of the following:
- type of device,
- location of the device,
- functionality of the device,
- owner of the device,
- user defined belonging.

26. A method according to claim 24 wherein the input preferably relates to at least one of the following:
- input from a sensor,
- input from a user,
- input from Network devices,
- input from other power distribution devices.

27. A method according to claim 24 wherein the action preferably relates to at least one of the following activities:
- power on,
- power off,
- cycle power,
- sequence up,
- sequence down, and
- user-defined power sequence.

28. A computer system comprising:
- one or more power distribution device(s) according to claim 1,
- one or more power distribution device(s) comprising power outlets,
- a user terminal comprising a display for displaying information relating to the power outlets,
- one or more electronic devices connected to the power outlets,

said computer system being programmed to:
- displaying on the display, information relating to one or more of the power outlets according to predetermined belongings of the power outlets.

29. A computer system according to claim 28 wherein the predetermined belongings of the outlets is chosen from a group of belongings comprising:
- type of device connected to the outlet,
- location of the device connected to the outlet,
- functionality of the device connected to the outlet,
- owner of the device connected to the outlet,
- user defined belongings,
- type of sensors.

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30. A computer system according to claims 28-29 wherein computer system further is programmed to send instructions from the user terminal to the power distribution device(s).

31. A power distribution device according to claim 1 receiving or sending information with a data structure comprising:
- at least one outlet block comprising data relating to an outlet,
- at least one sensor block comprising data relating to a sensor.

32. A data structure according to claim 31 further comprising at least one of the following blocks:
- a network block comprising data relating to the network,
- a power distribution device block comprising data relating to the power distribution device,
- a password block,
- a sequence block comprising data relating to the order of switching outlets on or off,
- a communication block comprising data relating to sending electronic messages.

33. The data structure according to claims 31 and 32, further being adapted to being transmitted over a network in order to facilitate the updating and storing of information.